TOWARD SOLVING THE CONCRETE DETERIORATION PROBLEM IN THE GULF REGION.

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Arabian Journal for Science and Engineering
Vol. 11, Issue.2, 1986

Abstract: The paper discusses specifications of materials, mix design parameters and cover to reinforcement in relation to the low durability problem of concrete construction in the Gulf States. Data are presented to show that Type I cement performs better than Type V cement in terms of corrosion of reinforcement, hereby indicating the use of Type V cement only in situations where sulfate attack is a strong possibility. Formulation of a modified cement which would be concurrently resistant to sulfate attack and chloride induced rebar corrosion is discussed. The usage potential of corrosion resistant reinforcement is highlighted. It is shown on the basis of data developed at the University of Petroleum and Minerals that a maximum water/cement ratio, a minimum cement content, and an optimum binary aggregate proportioning should be specified interactively to produce a high quality, dense, and impervious concrete for durable construction in the aggressive Gulf environment.